drip chamber or an opening in which drops are formed. The predetermined set of pixels may be a predetermined set of x, y values that correspond to pixels. Act **806** may use a connected component image analysis algorithm.

[0538] Act **807** filters all remaining pixels of the first thresholded image that are not within the set of pixels. The filter operates on a pixel-by-pixel basis within the time domain to generate a first filtered image. The first filtered image is an estimate of a non-active (e.g., a result from features not of interest in the image) portion of the first thresholded image (image **774** of FIG. **81**). The filter may be any filter, e.g., any filter described herein.

[0539] Act **808** removes pixels determined to not be part of a drop from the first thresholded image using the first filtered image to generate a second image (e.g., image **775** of FIG. **81**). A pixel within the second image will be set to 1 if a respective pixel in the first thresholded image is 1 and a respective pixel in the first filtered image is less than 0.5; otherwise, the pixel will be set to 0.

[0540] Act **809** determines a second set of pixels within the second image connected to a predetermined set of pixels within the second image to generate a third image (e.g., the image **776** of FIG. **81**). The third image identifies the second set of pixels within the second image. Act **809** finds the set of "lit" pixels in the second image connected to the predetermined set of pixels (e.g., pixels representing the opening in which drops are formed).

[0541] Act **810** determines a first length of the drop by counting the number of rows containing pixels corresponding to the second set of pixels within the third image. That is, the drop length is determined to be equal to the last "lit" row in the set of pixels found in Act **809**. The first length corresponds to a first estimated drop size.

[0542] Act **811** updates a background image using the first image. A low-pass filter may be used to update each pixel's value in the background image. An infinite impulse response filter may be used to update the background image using the first image. A pixel is only updated in the background image for rows below the first length plus a predetermined safety zone. A pixel in the background image is updated by low pass filtering the value from the corresponding pixel in the first image.

[0543] Act **812** creates a second thresholded image (e.g., image **772** of FIG. **81**) by comparing the first image with the background image. That is, the first image has the background image subtracted from it, and on a pixel-by-pixel basis, the absolute value of each pixel is set to 1 if it is above a second threshold value and is set to a 0 if it is below the second threshold value to generate the second thresholded image.

[0544] Act **813** sums the rows of the second thresholded image to create a plurality of row sums (see image **773** of FIG. **81**). Each row sum corresponds to a row of the second thresholded image.

[0545] Act **814** starts at a row position of the second thresholded image having a first sum of the plurality of sums that corresponds to the first length. The row position is incremented in act **815**. Act **816** determines whether the present row position correspond to a corresponding row sum that is below a threshold, e.g., zero. If no, then act **815** is preformed again until the present row position corresponds to a corresponding row sum that is zero and then the method **803** proceeds to act **817**.

[0546] Act **817** determines a second length is equal to the present row position. The second length corresponding to a second estimated drop size. Act **818** averages the first and second lengths to determine a average length. The average length corresponding to a third estimated drop size. By using the first and second lengths to determine an average length, the effects of condensation on the inner walls of the drip chamber are mitigated. That is, the purpose of creating two estimates of drop length is to compensate for how each length is affected by the presence of condensation. The first length tends to underestimate drop length if a drop of condensation intersects the growing drop from the spigot. The second length tends to overestimates the drop length if the drop of condensation intersects the growing drop from the spigot. Their average provides a better estimate when condensation is present. In the absence of condensation, the estimates are almost equal. In other embodiments, only either the first or second length is used to estimate the drop size.

[0547] FIG. **83** shows a flow chart diagram of a method **900** for reducing noise from condensation in accordance with an embodiment of the present disclosure. Method **900** includes acts **902-910**.

[0548] Act **902** captures an image of a drip chamber. Act **904** performs a canny, edge-detection operation on the image to generate a first processed image. Act **906** performs an AND-operation on a pixel on a first side of an axis of the first processed image with a corresponding mirror pixel on the second side of the axis of the first processed image. That is, Act **902** defines an axis in the first process image, and performs an AND on each pixel on one side with a pixel on the other side, such that the pixel on the other side is symmetrical with the pixel on first side. For example, a 40 (X-axis) by 40 (Y-axis) image may have an axis defined between pixel columns 19 and 20. The top, left pixel would be pixel (1,1) A pixel at location (1, 5) would be AND-ed with a pixel at (40,5). The resulting pixel would be used for both locations (1, 5) and (40,5) to generate the second processed image.

[0549] After act **906** is performed, act **908** determines whether all of the pixels have been processed. Act **908** repeats act **906** until all pixels have been processed. Act **910** provides a second processed image that is the results of all of the AND operations.

[0550] Various alternatives and modifications can be devised by those skilled in the art without departing from the disclosure. Accordingly, the present disclosure is intended to embrace all such alternatives, modifications and variances. Additionally, while several embodiments of the present disclosure have been shown in the drawings and/or discussed herein, it is not intended that the disclosure be limited thereto, as it is intended that the disclosure be as broad in scope as the art will allow and that the specification be read likewise. Therefore, the above description should not be construed as limiting, but merely as exemplifications of particular embodiments. And, those skilled in the art will envision other modifications within the scope and spirit of the claims appended hereto. Other elements, steps, methods and techniques that are insubstantially different from those described above and/or in the appended claims are also intended to be within the scope of the disclosure.

[0551] The embodiments shown in the drawings are presented only to demonstrate certain examples of the disclosure. And, the drawings described are only illustrative and